

## Ligands and Catalysts Catalogue



*Our chiral and C-X coupling ligands and catalysts*

*September 2017*

重松貿易(株) 化学品部

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Mail: [info@shigematsu-bio.com](mailto:info@shigematsu-bio.com)



## General information

- Order conveniently by sending an email to: [info@solvias.com](mailto:info@solvias.com)
- Quantities up to 1kg will be delivered in package units of 5g, 50g and 250g.
- All ligands are available on demand in multi kg amounts.
- Units marked in **bold** will typically be delivered from stock or within 3 to 4 weeks at the latest.
- Units marked in *italics* will typically be delivered within 4 to 6 weeks.
- Product specifications:
  - Identity and purity of each product is listed by NMR (<sup>31</sup>P and <sup>1</sup>H).
  - Chemical purity is >97% for chiral ligands and catalysts and >95% for C-X coupling ligands & catalysts and organocatalysts.
  - Enantiomeric purity is typically 99% ee.
  - Test results for each manufactured product batch will be summarized in an analytical data sheet.

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# Chiral ligands and catalysts

3

| Solvias No. | Chemical Name     | Supplier's trade name | Quantity           | Solvias No. | Chemical Name     | Supplier's trade name | Quantity           |
|-------------|-------------------|-----------------------|--------------------|-------------|-------------------|-----------------------|--------------------|
| CAS No.     | Molecular formula | Molecular weight      | Structural Formula | CAS No.     | Molecular formula | Molecular weight      | Structural Formula |

## CHENPHOS LIGANDS

|                          |                                                                                                                                                                                                                       |          |                                        |                           |                                                                                                                                                                                                                       |  |  |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| SL-F356-1<br>952586-19-5 | 1-Dicyclohexylphosphino-1'-[(S) <sub>P</sub> -[(S) <sub>FC</sub> -2-[(R) <sub>C</sub> -1-(dimethylamino)ethyl]ferrocenyl]phenylphosphino]ferrocene<br>C <sub>42</sub> H <sub>53</sub> Fe <sub>2</sub> NP <sub>2</sub> | Chenphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-F356-2<br>1036373-39-3 | 1-Dicyclohexylphosphino-1'-[(R) <sub>P</sub> -[(R) <sub>FC</sub> -2-[(S) <sub>C</sub> -1-(dimethylamino)ethyl]ferrocenyl]phenylphosphino]ferrocene<br>C <sub>42</sub> H <sub>53</sub> Fe <sub>2</sub> NP <sub>2</sub> |  |  |
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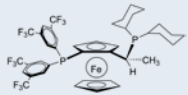
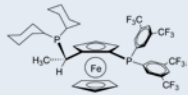
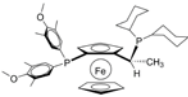
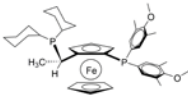
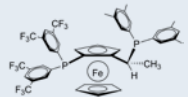
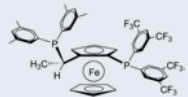
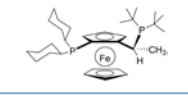
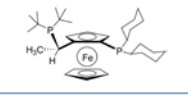
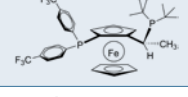
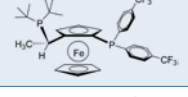
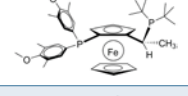
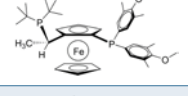
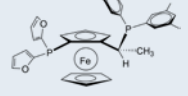
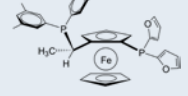
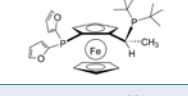
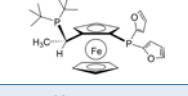
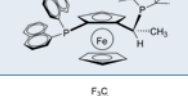


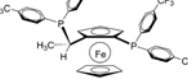
## IR-UBAPHOX COMPLEXES

|                           |                                                                                                                                                                                                                                                                                                 |         |                                        |                           |                                                                                                                                                                                                                                                                                                 |  |  |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| SK-X001-1a<br>880262-14-6 | (4 <i>R</i> ,5 <i>R</i> )-[(η <sup>4</sup> -1,5-cyclooctadiene)-[2-(2-phenyl-5-methyl-4,5-dihydro-oxazol-4-yl)-1,3-diphenyl-2-dicyclohexylphosphinite-propane]iridium(I)]tetrakis[3,5-bis(trifluoromethyl)phenyl]borate<br>C <sub>77</sub> H <sub>70</sub> BF <sub>24</sub> IrNO <sub>2</sub> P | Ubaphox | <b>5g</b><br><b>50g</b><br><b>250g</b> | SK-X001-2a<br>583844-38-6 | (4 <i>S</i> ,5 <i>S</i> )-[(η <sup>4</sup> -1,5-cyclooctadiene)-[2-(2-phenyl-5-methyl-4,5-dihydro-oxazol-4-yl)-1,3-diphenyl-2-dicyclohexylphosphinite-propane]iridium(I)]tetrakis[3,5-bis(trifluoromethyl)phenyl]borate<br>C <sub>77</sub> H <sub>70</sub> BF <sub>24</sub> IrNO <sub>2</sub> P |  |  |
| SK-X002-1a<br>880262-16-8 | (4 <i>R</i> ,5 <i>R</i> )-[(η <sup>4</sup> -1,5-cyclooctadiene)-[2-(2-phenyl-5-methyl-4,5-dihydro-oxazol-4-yl)-1,3-diphenyl-2-diphenylphosphinite-propane]iridium(I)]tetrakis[3,5-bis(trifluoromethyl)phenyl]borate<br>C <sub>77</sub> H <sub>58</sub> BF <sub>24</sub> IrNO <sub>2</sub> P     | Ubaphox | <b>5g</b><br><b>50g</b><br><i>250g</i> | SK-X002-2a<br>405235-55-4 | (4 <i>S</i> ,5 <i>S</i> )-[(η <sup>4</sup> -1,5-cyclooctadiene)-[2-(2-phenyl-5-methyl-4,5-dihydro-oxazol-4-yl)-1,3-diphenyl-2-diphenylphosphinite-propane]iridium(I)]tetrakis[3,5-bis(trifluoromethyl)phenyl]borate<br>C <sub>77</sub> H <sub>58</sub> BF <sub>24</sub> IrNO <sub>2</sub> P     |  |  |

## JOSIPHOS LIGANDS

|                          |                                                                                                                                                                                               |          |                                        |                          |                                                                                                                                                                                               |  |  |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| SL-J001-1<br>155806-35-2 | ( <i>R</i> )-1-[( <i>S</i> )-2-(Diphenylphosphino)ferrocenyl]ethylidicyclohexylphosphine ethanol adduct<br>C <sub>36</sub> H <sub>44</sub> FeP <sub>2</sub> ·C <sub>2</sub> H <sub>5</sub> OH | Josiphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-J001-2<br>162291-02-3 | ( <i>S</i> )-1-[( <i>R</i> )-2-(Diphenylphosphino)ferrocenyl]ethylidicyclohexylphosphine ethanol adduct<br>C <sub>36</sub> H <sub>44</sub> FeP <sub>2</sub> ·C <sub>2</sub> H <sub>5</sub> OH |  |  |
| SL-J002-1<br>155830-69-6 | ( <i>R</i> )-1-[( <i>S</i> )-2-(Diphenylphosphino)ferrocenyl]ethyliditert-butylphosphine<br>C <sub>32</sub> H <sub>40</sub> FeP <sub>2</sub>                                                  | Josiphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-J002-2<br>277306-29-3 | ( <i>S</i> )-1-[( <i>R</i> )-2-(Diphenylphosphino)ferrocenyl]ethyliditert-butylphosphine<br>C <sub>32</sub> H <sub>40</sub> FeP <sub>2</sub>                                                  |  |  |
| SL-J003-1<br>167416-28-6 | ( <i>R</i> )-1-[( <i>S</i> )-2-(Dicyclohexylphosphino)ferrocenyl]ethylidicyclohexylphosphine<br>C <sub>36</sub> H <sub>56</sub> FeP <sub>2</sub>                                              | Josiphos | <b>5g</b><br><b>50g</b><br><i>250g</i> | SL-J003-2<br>246231-77-6 | ( <i>S</i> )-1-[( <i>R</i> )-2-(Dicyclohexylphosphino)ferrocenyl]ethylidicyclohexylphosphine<br>C <sub>36</sub> H <sub>56</sub> FeP <sub>2</sub>                                              |  |  |
| SL-J004-1<br>158923-09-2 | ( <i>R</i> )-1-[( <i>S</i> )-2-(Dicyclohexylphosphino)ferrocenyl]ethylidiphenylphosphine<br>C <sub>36</sub> H <sub>44</sub> FeP <sub>2</sub>                                                  | Josiphos | <b>5g</b><br><b>50g</b><br><i>250g</i> | SL-J004-2<br>162291-01-2 | ( <i>S</i> )-1-[( <i>R</i> )-2-(Dicyclohexylphosphino)ferrocenyl]ethylidiphenylphosphine<br>C <sub>36</sub> H <sub>44</sub> FeP <sub>2</sub>                                                  |  |  |
| SL-J005-1<br>184095-69-0 | ( <i>R</i> )-1-[( <i>S</i> )-2-(Diphenylphosphino)ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>40</sub> H <sub>40</sub> FeP <sub>2</sub>                                                 | Josiphos | <b>5g</b><br><b>50g</b><br><i>250g</i> | SL-J005-2<br>223121-07-1 | ( <i>S</i> )-1-[( <i>R</i> )-2-(Diphenylphosphino)ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>40</sub> H <sub>40</sub> FeP <sub>2</sub>                                                 |  |  |

QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS

| Solvias No.<br>CAS No.   | Chemical Name<br>Molecular formula                                                                                                                                                | Molecular weight | Structural Formula                                                                  | Supplier's<br>trade name | Quantity                               | Solvias No.<br>CAS No.    | Chemical Name<br>Molecular formula                                                                                                                                                | Molecular weight | Structural Formula                                                                    |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|--------------------------|----------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------|
| SL-J006-1<br>292638-88-1 | (R)-1-[(S)-2-Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethylidicyclohexylphosphine<br>C <sub>40</sub> H <sub>40</sub> F <sub>12</sub> FeP <sub>2</sub>              | 866.53 g/mol     |    | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J006-2<br>849923-15-5  | (S)-1-[(R)-2-Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethylidicyclohexylphosphine<br>C <sub>40</sub> H <sub>40</sub> F <sub>12</sub> FeP <sub>2</sub>              | 866.53 g/mol     |    |
| SL-J007-1<br>360048-63-1 | (R)-1-[(S)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethylidicyclohexylphosphine<br>C <sub>42</sub> H <sub>56</sub> FeO <sub>2</sub> P <sub>2</sub>                | 710.70 g/mol     |    | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J007-2<br>849923-88-2  | (S)-1-[(R)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethylidicyclohexylphosphine<br>C <sub>42</sub> H <sub>56</sub> FeO <sub>2</sub> P <sub>2</sub>                | 710.70 g/mol     |    |
| SL-J008-1<br>166172-63-0 | (R)-1-[(S)-2-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>44</sub> H <sub>36</sub> F <sub>12</sub> FeP <sub>2</sub>            | 910.54 g/mol     |    | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J008-2<br>1272317-38-0 | (S)-1-[(R)-2-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>44</sub> H <sub>36</sub> F <sub>12</sub> FeP <sub>2</sub>            | 910.54 g/mol     |    |
| SL-J009-1<br>158923-11-6 | (R)-1-[(S)-2-(Dicyclohexylphosphino)ferrocenyl]ethyliditert-butylphosphine<br>C <sub>32</sub> H <sub>52</sub> FeP <sub>2</sub>                                                    | 554.56 g/mol     |    | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J009-2<br>1246841-00-8 | (S)-1-[(R)-2-(Dicyclohexylphosphino)ferrocenyl]ethyliditert-butylphosphine<br>C <sub>32</sub> H <sub>52</sub> FeP <sub>2</sub>                                                    | 554.56 g/mol     |    |
| SL-J011-1<br>246231-79-8 | (R)-1-[(S)-2-[Bis[4-(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>34</sub> H <sub>38</sub> F <sub>6</sub> FeP <sub>2</sub>                   | 678.46 g/mol     |    | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J011-2<br>849924-37-4  | (S)-1-[(R)-2-[Bis[4-(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>34</sub> H <sub>38</sub> F <sub>6</sub> FeP <sub>2</sub>                   | 678.46 g/mol     |    |
| SL-J013-1<br>187733-50-2 | (R)-1-[(S)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>38</sub> H <sub>52</sub> FeO <sub>2</sub> P <sub>2</sub>                | 658.62 g/mol     |    | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J013-2<br>849924-40-9  | (S)-1-[(R)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>38</sub> H <sub>52</sub> FeO <sub>2</sub> P <sub>2</sub>                | 658.62 g/mol     |    |
| SL-J015-1<br>649559-65-9 | (R)-1-[(S)-2-[Di(2-furyl)phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>36</sub> H <sub>36</sub> FeO <sub>2</sub> P <sub>2</sub>                                     | 618.47 g/mol     |   | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J015-2<br>649559-66-0  | (S)-1-[(R)-2-[Di(2-furyl)phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>36</sub> H <sub>36</sub> FeO <sub>2</sub> P <sub>2</sub>                                     | 618.47 g/mol     |   |
| SL-J212-1<br>849924-41-0 | (R)-1-[(S)-2-[Di(2-furyl)phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>28</sub> H <sub>36</sub> FeO <sub>2</sub> P <sub>2</sub>                                      | 522.39 g/mol     |  | Josiphos                 | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-J212-2<br>849924-42-1  | (S)-1-[(R)-2-[Di(2-furyl)phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>28</sub> H <sub>36</sub> FeO <sub>2</sub> P <sub>2</sub>                                      | 522.39 g/mol     |  |
| SL-J216-1<br>849924-43-2 | (R)-1-[(S)-2-[Di(1-naphthyl)phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>40</sub> H <sub>44</sub> FeP <sub>2</sub>                                                  | 642.58 g/mol     |  | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J216-2<br>849924-44-3  | (S)-1-[(R)-2-[Di(1-naphthyl)phosphino]ferrocenyl]ethyliditert-butylphosphine<br>C <sub>40</sub> H <sub>44</sub> FeP <sub>2</sub>                                                  | 642.58 g/mol     |  |
| SL-J403-1<br>166172-60-7 | (R)-1-[(S)-2-[Bis[4-(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethylbis[4-(trifluoromethyl)phenyl]phosphine<br>C <sub>40</sub> H <sub>28</sub> F <sub>12</sub> FeP <sub>2</sub> | 854.42 g/mol     |  | Josiphos                 | <b>5g</b><br><b>50g</b><br>250g        | SL-J403-2<br>1854066-56-0 | (S)-1-[(R)-2-[Bis[4-(trifluoromethyl)phenyl]phosphino]ferrocenyl]ethylbis[4-(trifluoromethyl)phenyl]phosphine<br>C <sub>40</sub> H <sub>28</sub> F <sub>12</sub> FeP <sub>2</sub> | 854.42 g/mol     |  |

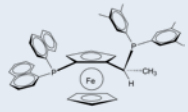
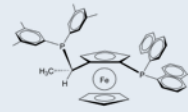
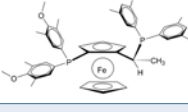
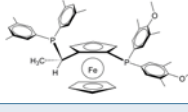
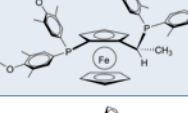
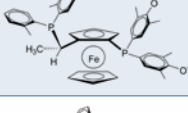
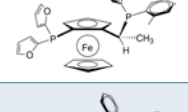
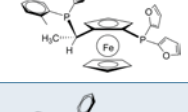
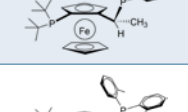
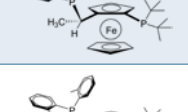
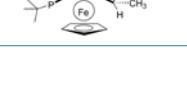
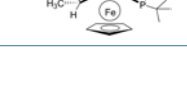
QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS

# Chiral ligands and catalysts

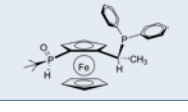
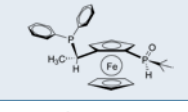
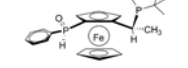
5

| Solvias No. | Chemical Name     | Supplier's | Solvias No.      | Chemical Name      |
|-------------|-------------------|------------|------------------|--------------------|
| CAS No.     | Molecular formula | trade name | CAS No.          | Molecular formula  |
|             | Molecular weight  | Quantity   | Molecular weight | Structural Formula |

## JOSIPHOS LIGANDS continued...

|                          |                                                                                                                                                                                     |                                                                                    |          |                                        |                          |                                                                                                                                                                                     |                                                                                      |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------|----------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| SL-J404-1<br>851308-40-2 | (R)-1-[(S)-2-[Di(1-naphthyl)phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>48</sub> H <sub>44</sub> FeP <sub>2</sub><br>738.68 g/mol                                   |   | Josiphos | <b>5g</b><br><b>50g</b><br>250g        | SL-J404-2<br>851308-41-3 | (S)-1-[(R)-2-[Di(1-naphthyl)phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>48</sub> H <sub>44</sub> FeP <sub>2</sub><br>738.68 g/mol                                   |   |
| SL-J418-1<br>849924-45-4 | (R)-1-[(S)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>46</sub> H <sub>52</sub> FeO <sub>2</sub> P <sub>2</sub><br>754.70 g/mol |   | Josiphos | <b>5g</b><br><b>50g</b><br>250g        | SL-J418-2<br>849924-48-7 | (S)-1-[(R)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethylidi(3,5-xylyl)phosphine<br>C <sub>46</sub> H <sub>52</sub> FeO <sub>2</sub> P <sub>2</sub><br>754.70 g/mol |   |
| SL-J425-1<br>849924-49-8 | (R)-1-[(S)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethylidi-o-tolylphosphine<br>C <sub>44</sub> H <sub>48</sub> FeO <sub>2</sub> P <sub>2</sub><br>726.64 g/mol    |   | Josiphos | <b>5g</b><br><b>50g</b><br>250g        | SL-J425-2<br>849924-52-3 | (S)-1-[(R)-2-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]ferrocenyl]ethylidi-o-tolylphosphine<br>C <sub>44</sub> H <sub>48</sub> FeO <sub>2</sub> P <sub>2</sub><br>726.64 g/mol    |   |
| SL-J452-1<br>849924-73-8 | (R)-1-[(S)-2-[Di(2-furyl)phosphino]ferrocenyl]ethylidi-o-tolylphosphine<br>C <sub>34</sub> H <sub>32</sub> FeO <sub>2</sub> P <sub>2</sub><br>590.42 g/mol                          |   | Josiphos | <b>5g</b><br><b>50g</b><br>250g        | SL-J452-2<br>849924-74-9 | (S)-1-[(R)-2-[Di(2-furyl)phosphino]ferrocenyl]ethylidi-o-tolylphosphine<br>C <sub>34</sub> H <sub>32</sub> FeO <sub>2</sub> P <sub>2</sub><br>590.42 g/mol                          |   |
| SL-J502-1<br>223120-71-6 | (R)-1-[(S)-2-(Di-tert-butylphosphino)ferrocenyl]ethylidiphenylphosphine<br>C <sub>32</sub> H <sub>40</sub> FeP <sub>2</sub><br>542.46 g/mol                                         |   | Josiphos | <b>5g</b><br><b>50g</b><br>250g        | SL-J502-2<br>223121-01-5 | (S)-1-[(R)-2-(Di-tert-butylphosphino)ferrocenyl]ethylidiphenylphosphine<br>C <sub>32</sub> H <sub>40</sub> FeP <sub>2</sub><br>542.46 g/mol                                         |   |
| SL-J505-1<br>849924-76-1 | (R)-1-[(S)-2-(Di-tert-butylphosphino)ferrocenyl]ethylidi-o-tolylphosphine<br>C <sub>34</sub> H <sub>44</sub> FeP <sub>2</sub><br>570.52 g/mol                                       |  | Josiphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-J505-2<br>849924-77-2 | (S)-1-[(R)-2-(Di-tert-butylphosphino)ferrocenyl]ethylidi-o-tolylphosphine<br>C <sub>34</sub> H <sub>44</sub> FeP <sub>2</sub><br>570.52 g/mol                                       |  |

## JOSPOPHOS LIGANDS


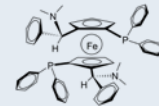

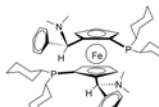
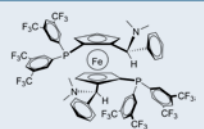
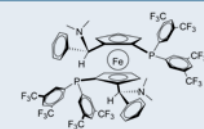
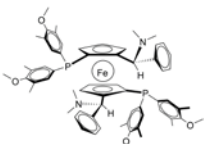
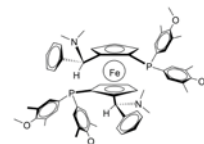
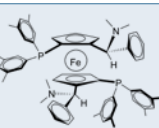
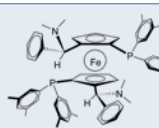
|                           |                                                                                                                                                                                  |                                                                                     |           |                                 |                           |                                                                                                                                                                                  |                                                                                       |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|---------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| SL-J681-1<br>1221745-90-9 | (S) <sub>Fc</sub> -1-[(R) <sub>P</sub> -tert-Butylphosphinoyl]-2-[(R)-1-(diphenylphosphino)ethyl]ferrocene<br>C <sub>28</sub> H <sub>32</sub> FeOP <sub>2</sub><br>502.35 g/mol  |  | JoSPOphos | <b>5g</b><br><b>50g</b><br>250g | SL-J681-2<br>1221746-31-1 | (R) <sub>Fc</sub> -1-[(S) <sub>P</sub> -tert-Butylphosphinoyl]-2-[(S)-1-(diphenylphosphino)ethyl]ferrocene<br>C <sub>28</sub> H <sub>32</sub> FeOP <sub>2</sub><br>502.35 g/mol  |  |
| SL-J688-1<br>1221746-56-0 | (S) <sub>Fc</sub> -1-[(R) <sub>P</sub> -Phenylphosphinoyl]-2-[(R)-1-(di-tert-butylphosphino)ethyl]ferrocene<br>C <sub>26</sub> H <sub>36</sub> FeOP <sub>2</sub><br>482.36 g/mol |  | JoSPOphos | <b>5g</b><br><b>50g</b><br>250g | SL-J688-2<br>1221746-66-2 | (R) <sub>Fc</sub> -1-[(S) <sub>P</sub> -Phenylphosphinoyl]-2-[(S)-1-(di-tert-butylphosphino)ethyl]ferrocene<br>C <sub>26</sub> H <sub>36</sub> FeOP <sub>2</sub><br>482.36 g/mol |  |

QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS

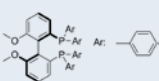
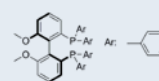
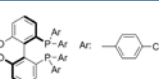
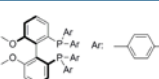


| Solvias No.<br>CAS No. | Chemical Name<br>Molecular formula | Molecular weight | Structural Formula | Supplier's<br>trade name | Quantity | Solvias No.<br>CAS No. | Chemical Name<br>Molecular formula | Molecular weight | Structural Formula |
|------------------------|------------------------------------|------------------|--------------------|--------------------------|----------|------------------------|------------------------------------|------------------|--------------------|
|------------------------|------------------------------------|------------------|--------------------|--------------------------|----------|------------------------|------------------------------------|------------------|--------------------|

## MANDYPHOS LIGANDS

|                          |                                                                                                                                                                                                                                                                  |               |                                                                                   |           |                                        |                          |                                                                                                                                                                                                                                                                  |               |                                                                                     |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------|-----------|----------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|
| SL-M001-1<br>174467-31-3 | ( <i>S,S</i> ) <sub>Fe</sub> -1,1'-Bis(diphenylphosphino)-2,2'-bis[( <i>R,R</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>52</sub> H <sub>50</sub> FeN <sub>2</sub> P <sub>2</sub>                                            | 820.77 g/mol  |  | Mandyphos | <b>5g</b><br><b>50g</b><br>250g        | SL-M001-2<br>223725-09-5 | ( <i>R,R</i> ) <sub>Fe</sub> -1,1'-Bis(diphenylphosphino)-2,2'-bis[( <i>S,S</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>52</sub> H <sub>50</sub> FeN <sub>2</sub> P <sub>2</sub>                                            | 820.77 g/mol  |  |
| SL-M002-1<br>494227-35-9 | ( <i>S,S</i> ) <sub>Fe</sub> -1,1'-Bis(dicyclohexylphosphino)-2,2'-bis[( <i>R,R</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>52</sub> H <sub>74</sub> FeN <sub>2</sub> P <sub>2</sub>                                        | 844.97 g/mol  |  | Mandyphos | <b>5g</b><br><b>50g</b><br>250g        | SL-M002-2<br>849924-78-3 | ( <i>R,R</i> ) <sub>Fe</sub> -1,1'-Bis(dicyclohexylphosphino)-2,2'-bis[( <i>S,S</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>52</sub> H <sub>74</sub> FeN <sub>2</sub> P <sub>2</sub>                                        | 844.97 g/mol  |  |
| SL-M003-1<br>494227-36-0 | ( <i>S,S</i> ) <sub>Fe</sub> -1,1'-Bis[bis[3,5-bis(trifluoromethyl)phenyl]phosphino]-2,2'-bis[( <i>R,R</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>60</sub> H <sub>42</sub> F <sub>24</sub> FeN <sub>2</sub> P <sub>2</sub> | 1364.75 g/mol |  | Mandyphos | <b>5g</b><br><b>50g</b><br>250g        | SL-M003-2<br>849925-10-6 | ( <i>R,R</i> ) <sub>Fe</sub> -1,1'-Bis[bis[3,5-bis(trifluoromethyl)phenyl]phosphino]-2,2'-bis[( <i>S,S</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>60</sub> H <sub>42</sub> F <sub>24</sub> FeN <sub>2</sub> P <sub>2</sub> | 1364.75 g/mol |  |
| SL-M004-1<br>876608-69-4 | ( <i>S,S</i> ) <sub>Fe</sub> -1,1'-Bis[bis(4-methoxy-3,5-dimethylphenyl)phosphino]-2,2'-bis[( <i>R,R</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>64</sub> H <sub>74</sub> FeN <sub>2</sub> O <sub>4</sub> P <sub>2</sub>    | 1053.09 g/mol |  | Mandyphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-M004-2<br>849925-12-8 | ( <i>R,R</i> ) <sub>Fe</sub> -1,1'-Bis[bis(4-methoxy-3,5-dimethylphenyl)phosphino]-2,2'-bis[( <i>S,S</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>64</sub> H <sub>74</sub> FeN <sub>2</sub> O <sub>4</sub> P <sub>2</sub>    | 1053.09 g/mol |  |
| SL-M009-1<br>793718-16-8 | ( <i>S,S</i> ) <sub>Fe</sub> -1,1'-Bis[bis(3,5-dimethylphenyl)phosphino]-2,2'-bis[( <i>R,R</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>60</sub> H <sub>66</sub> FeN <sub>2</sub> P <sub>2</sub>                             | 933.01 g/mol  |  | Mandyphos | <b>5g</b><br><b>50g</b><br>250g        | SL-M009-2<br>847997-73-3 | ( <i>R,R</i> ) <sub>Fe</sub> -1,1'-Bis[bis(3,5-dimethylphenyl)phosphino]-2,2'-bis[( <i>S,S</i> ) <sub>C</sub> -( <i>N,N</i> -dimethylamino)phenylmethyl]ferrocene<br>C <sub>60</sub> H <sub>66</sub> FeN <sub>2</sub> P <sub>2</sub>                             | 933.01 g/mol  |  |

## MEOBIPHEP LIGANDS

|                          |                                                                                                                                                   |              |                                                                                     |           |                                        |                          |                                                                                                                                                   |              |                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------|----------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|
| SL-A101-1<br>133545-16-1 | ( <i>R</i> )-2,2'-Bis(diphenylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>38</sub> H <sub>32</sub> O <sub>2</sub> P <sub>2</sub>            | 582.62 g/mol |  | MeOBIPHEP | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-A101-2<br>133545-17-2 | ( <i>S</i> )-2,2'-Bis(diphenylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>38</sub> H <sub>32</sub> O <sub>2</sub> P <sub>2</sub>            | 582.62 g/mol |  |
| SL-A102-1<br>133545-24-1 | ( <i>R</i> )-2,2'-Bis(di- <i>p</i> -tolylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>42</sub> H <sub>40</sub> O <sub>2</sub> P <sub>2</sub> | 638.73 g/mol |  | MeOBIPHEP | <b>5g</b><br><b>50g</b><br>250g        | SL-A102-2<br>133545-25-2 | ( <i>S</i> )-2,2'-Bis(di- <i>p</i> -tolylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>42</sub> H <sub>40</sub> O <sub>2</sub> P <sub>2</sub> | 638.73 g/mol |  |

QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS

# Chiral ligands and catalysts

7

| Solvias No.<br>CAS No. | Chemical Name<br>Molecular formula | Molecular weight | Structural Formula | Supplier's<br>trade name | Quantity | Solvias No.<br>CAS No. | Chemical Name<br>Molecular formula | Molecular weight | Structural Formula |
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|------------------------|------------------------------------|------------------|--------------------|--------------------------|----------|------------------------|------------------------------------|------------------|--------------------|

## MEOBIPHEP LIGANDS continued...

|                          |                                                                                                                                                                                 |               |  |           |                          |                          |                                                                                                                                                                                 |               |  |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--|-----------|--------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--|
| SL-A104-1<br>256390-47-3 | (R)-2,2'-Bis[bis(3,4,5-trimethoxyphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>50</sub> H <sub>56</sub> O <sub>14</sub> P <sub>2</sub>                               | 942.94 g/mol  |  | MeOBIPHEP | <b>5g</b><br>50g<br>250g | SL-A104-2<br>927396-01-8 | (S)-2,2'-Bis[bis(3,4,5-trimethoxyphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>50</sub> H <sub>56</sub> O <sub>14</sub> P <sub>2</sub>                               | 942.94 g/mol  |  |
| SL-A107-1<br>352655-40-4 | (R)-2,2'-Bis[bis(3,5-diisopropyl-4-dimethylaminophenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>70</sub> H <sub>100</sub> N <sub>4</sub> O <sub>2</sub> P <sub>2</sub> | 1091.55 g/mol |  | MeOBIPHEP | <b>5g</b><br>50g<br>250g | SL-A107-2<br>919338-66-2 | (S)-2,2'-Bis[bis(3,5-diisopropyl-4-dimethylaminophenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>70</sub> H <sub>100</sub> N <sub>4</sub> O <sub>2</sub> P <sub>2</sub> | 1091.55 g/mol |  |
| SL-A108-1<br>145214-57-9 | (R)-2,2'-Bis(di-2-furylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>30</sub> H <sub>24</sub> O <sub>6</sub> P <sub>2</sub>                                                 | 542.47 g/mol  |  | MeOBIPHEP | <b>5g</b><br>50g<br>250g | SL-A108-2<br>145214-59-1 | (S)-2,2'-Bis(di-2-furylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>30</sub> H <sub>24</sub> O <sub>6</sub> P <sub>2</sub>                                                 | 542.47 g/mol  |  |
| SL-A109-1<br>352655-61-9 | (R)-2,2'-Bis[bis(3,5-di-tert-butyl-4-methoxyphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>74</sub> H <sub>104</sub> O <sub>6</sub> P <sub>2</sub>                    | 1151.60 g/mol |  | MeOBIPHEP | <b>5g</b><br>50g<br>250g | SL-A109-2<br>910134-30-4 | (S)-2,2'-Bis[bis(3,5-di-tert-butyl-4-methoxyphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>74</sub> H <sub>104</sub> O <sub>6</sub> P <sub>2</sub>                    | 1151.60 g/mol |  |
| SL-A116-1<br>150971-45-2 | (R)-2,2'-Bis(diisopropylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>26</sub> H <sub>40</sub> O <sub>2</sub> P <sub>2</sub>                                                | 446.56 g/mol  |  | MeOBIPHEP | <b>5g</b><br>50g<br>250g | SL-A116-2<br>150971-43-0 | (S)-2,2'-Bis(diisopropylphosphino)-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>26</sub> H <sub>40</sub> O <sub>2</sub> P <sub>2</sub>                                                | 446.56 g/mol  |  |
| SL-A120-1<br>394248-45-4 | (R)-2,2'-Bis[di(3,5-xylyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>46</sub> H <sub>48</sub> O <sub>2</sub> P <sub>2</sub>                                              | 694.84 g/mol  |  | MeOBIPHEP | <b>5g</b><br>50g<br>250g | SL-A120-2<br>362634-22-8 | (S)-2,2'-Bis[di(3,5-xylyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>46</sub> H <sub>48</sub> O <sub>2</sub> P <sub>2</sub>                                              | 694.84 g/mol  |  |
| SL-A121-1<br>192138-05-9 | (R)-2,2'-Bis[bis(3,5-di-tert-butylphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>70</sub> H <sub>96</sub> O <sub>2</sub> P <sub>2</sub>                               | 1031.49 g/mol |  | MeOBIPHEP | <b>5g</b><br>50g<br>250g | SL-A121-2<br>167709-31-1 | (S)-2,2'-Bis[bis(3,5-di-tert-butylphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl<br>C <sub>70</sub> H <sub>96</sub> O <sub>2</sub> P <sub>2</sub>                               | 1031.49 g/mol |  |

## PFA LIGANDS

|                           |                                                                                                                                                   |              |  |     |                                 |                           |                                                                                                                                                   |              |  |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--|-----|---------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--|
| SL-F103-1<br>55700-44-2   | (S)-1-[(R)-1-(Dimethylamino)ethyl]-2-(diphenylphosphino)ferrocene<br>C <sub>26</sub> H <sub>28</sub> FeNP                                         | 441.34 g/mol |  | PFA | <b>5g</b><br><b>50g</b><br>250g | SL-F103-2<br>137695-36-4  | (R)-1-[(S)-1-(Dimethylamino)ethyl]-2-(diphenylphosphino)ferrocene<br>C <sub>26</sub> H <sub>28</sub> FeNP                                         | 441.34 g/mol |  |
| SL-F171-1<br>607365-35-5  | (S)-1-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]-2-[(R)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>32</sub> H <sub>40</sub> FeNO <sub>2</sub> P | 557.50 g/mol |  | PFA | <b>5g</b><br><b>50g</b><br>250g | SL-F171-2<br>1889392-50-0 | (R)-1-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]-2-[(S)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>32</sub> H <sub>40</sub> FeNO <sub>2</sub> P | 557.50 g/mol |  |
| SL-F172-1<br>1613740-36-5 | (S)-1-(Difurylphosphino)-2-[(R)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>22</sub> H <sub>24</sub> FeNO <sub>2</sub> P                           | 421.26 g/mol |  | PFA | <b>5g</b><br><b>50g</b><br>250g | SL-F172-2<br>1889392-49-7 | (R)-1-(Difurylphosphino)-2-[(S)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>22</sub> H <sub>24</sub> FeNO <sub>2</sub> P                           | 421.26 g/mol |  |


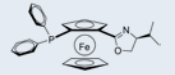
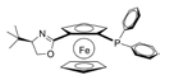
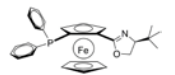
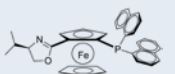
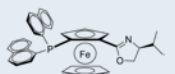

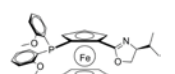
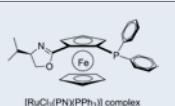
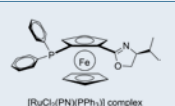
QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS



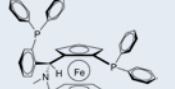
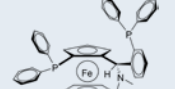
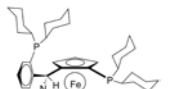
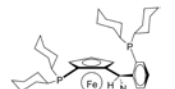
| Solvias No.<br>CAS No.   | Chemical Name<br>Molecular formula                                                                                                                   | Molecular weight | Structural Formula                                                                | Supplier's<br>trade name | Quantity                        | Solvias No.<br>CAS No.   | Chemical Name<br>Molecular formula                                                                                                                   | Molecular weight | Structural Formula                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------|--------------------------|---------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|
| SL-F173-1<br>166172-70-9 | (S)-1-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]-2-[(R)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>30</sub> H <sub>24</sub> F <sub>12</sub> FeNP | 713.33 g/mol     |  | PFA                      | <b>5g</b><br><b>50g</b><br>250g | SL-F173-2<br>191233-65-5 | (R)-1-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]-2-[(S)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>30</sub> H <sub>24</sub> F <sub>12</sub> FeNP | 713.33 g/mol     |  |
| SL-F174-1<br>171817-39-3 | (S)-1-(Dicyclohexylphosphino)-2-[(R)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>26</sub> H <sub>40</sub> FeNP                                        | 453.43 g/mol     |  | PFA                      | <b>5g</b><br><b>50g</b><br>250g | SL-F174-2<br>146960-92-1 | (R)-1-(Dicyclohexylphosphino)-2-[(S)-1-(dimethylamino)ethyl]ferrocene<br>C <sub>26</sub> H <sub>40</sub> FeNP                                        | 453.43 g/mol     |  |

PFA LIGANDS continued...

## POX LIGANDS AND RU COMPLEXES

|                            |                                                                                                                                                                                                |              |                                                                                    |     |                                 |                           |                                                                                                                                                                                                |              |                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------|-----|---------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------------------------------------------|
| SL-N003-1<br>1065474-88-5  | (R,R)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-2-(diphenylphosphino)ferrocene<br>C <sub>28</sub> H <sub>28</sub> FeNOP                                                                              | 481.36 g/mol |   | POx | <b>5g</b><br><b>50g</b><br>250g | SL-N003-2<br>163169-10-6  | (S,S)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-2-(diphenylphosphino)ferrocene<br>C <sub>28</sub> H <sub>28</sub> FeNOP                                                                              | 481.36 g/mol |   |
| SL-N004-1<br>1226898-27-6  | (R,R)-(4,5-Dihydro-4-tert-butyl-2-oxazoly)-2-(diphenylphosphino)ferrocene<br>C <sub>29</sub> H <sub>30</sub> FeNOP                                                                             | 495.37 g/mol |   | POx | <b>5g</b><br><b>50g</b><br>250g | SL-N004-2<br>163169-15-1  | (S,S)-(4,5-Dihydro-4-tert-butyl-2-oxazoly)-2-(diphenylphosphino)ferrocene<br>C <sub>29</sub> H <sub>30</sub> FeNOP                                                                             | 495.37 g/mol |   |
| SL-N011-1<br>1854070-87-3  | (R,R)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-2-[di(1-naphthyl)phosphino]ferrocene<br>C <sub>36</sub> H <sub>32</sub> FeNOP                                                                        | 581.48 g/mol |   | POx | <b>5g</b><br><b>50g</b><br>250g | SL-N011-2<br>950201-43-1  | (S,S)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-2-[di(1-naphthyl)phosphino]ferrocene<br>C <sub>36</sub> H <sub>32</sub> FeNOP                                                                        | 581.48 g/mol |   |
| SL-N012-1<br>1854071-00-3  | (R,R)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-2-[di(2-methoxyphenyl)phosphino]ferrocene<br>C <sub>30</sub> H <sub>32</sub> FeNO <sub>3</sub> P                                                     | 541.41 g/mol |   | POx | <b>5g</b><br><b>50g</b><br>250g | SL-N012-2<br>950201-47-5  | (S,S)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-2-[di(2-methoxyphenyl)phosphino]ferrocene<br>C <sub>30</sub> H <sub>32</sub> FeNO <sub>3</sub> P                                                     | 541.41 g/mol |   |
| SK-N003-1z<br>1312582-16-3 | Dichloro[(R,R)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-κN]-2-(diphenylphosphino-κP)ferrocene]triphenylphosphine ruthenium<br>C <sub>46</sub> H <sub>43</sub> Cl <sub>2</sub> FeNOP <sub>2</sub> Ru | 915.70 g/mol |  | POx | <b>5g</b><br><b>50g</b><br>250g | SK-N003-2z<br>212133-11-4 | Dichloro[(S,S)-(4,5-Dihydro-4-isopropyl-2-oxazoly)-κN]-2-(diphenylphosphino-κP)ferrocene]triphenylphosphine ruthenium<br>C <sub>46</sub> H <sub>43</sub> Cl <sub>2</sub> FeNOP <sub>2</sub> Ru | 915.70 g/mol |  |

## TANIAPHOS LIGANDS

|                           |                                                                                                                                                              |              |                                                                                     |           |                                        |                          |                                                                                                                                                              |              |                                                                                       |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------|----------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|
| SL-T001-1<br>1003012-96-1 | (R)-1-Diphenylphosphino-2-[(R)-(N,N-dimethylamino)[2-(diphenylphosphino)phenyl]methyl]ferrocene<br>C <sub>43</sub> H <sub>39</sub> FeNP <sub>2</sub>         | 687.56 g/mol |  | Taniaphos | <b>5g</b><br><b>50g</b><br>250g        | SL-T001-2<br>850444-36-9 | (S)-1-Diphenylphosphino-2-[(S)-(N,N-dimethylamino)[2-(diphenylphosphino)phenyl]methyl]ferrocene<br>C <sub>43</sub> H <sub>39</sub> FeNP <sub>2</sub>         | 687.56 g/mol |  |
| SL-T002-1<br>1156547-61-3 | (R)-1-Dicyclohexylphosphino-2-[(R)-(N,N-dimethylamino)[2-(dicyclohexylphosphino)phenyl]methyl]ferrocene<br>C <sub>43</sub> H <sub>63</sub> FeNP <sub>2</sub> | 711.79 g/mol |  | Taniaphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-T002-2<br>914089-00-2 | (S)-1-Dicyclohexylphosphino-2-[(S)-(N,N-dimethylamino)[2-(dicyclohexylphosphino)phenyl]methyl]ferrocene<br>C <sub>43</sub> H <sub>63</sub> FeNP <sub>2</sub> | 711.79 g/mol |  |

QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS

# Chiral ligands and catalysts

9

| Solvias No. | Chemical Name     |                  | Supplier's | Solvias No. | Chemical Name     |                  | Supplier's |
|-------------|-------------------|------------------|------------|-------------|-------------------|------------------|------------|
| CAS No.     | Molecular formula | Molecular weight | trade name | CAS No.     | Molecular formula | Molecular weight | trade name |

## TRIFER LIGANDS

|                          |                                                                                                                                                                                                                                  |  |        |                                        |                          |                                                                                                                                                                                                                                  |  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|----------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SL-F131-1<br>899811-43-9 | 1,1'-Bis[(S) <sub>P</sub> -[(S) <sub>FC</sub> -2-[(R) <sub>C</sub> -1-(dimethylamino)ethyl]ferrocenyl]phenylphosphino]ferrocene<br>C <sub>50</sub> H <sub>54</sub> Fe <sub>3</sub> N <sub>2</sub> P <sub>2</sub><br>912.46 g/mol |  | Trifer | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-F131-2<br>900505-82-0 | 1,1'-Bis[(R) <sub>P</sub> -[(R) <sub>FC</sub> -2-[(S) <sub>C</sub> -1-(dimethylamino)ethyl]ferrocenyl]phenylphosphino]ferrocene<br>C <sub>50</sub> H <sub>54</sub> Fe <sub>3</sub> N <sub>2</sub> P <sub>2</sub><br>912.46 g/mol |  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|----------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

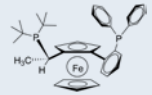


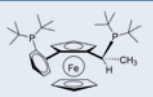
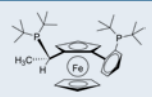
## WALPHOS LIGANDS

|                          |                                                                                                                                                                                                    |  |         |                                        |                           |                                                                                                                                                                                                    |  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------|----------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SL-W001-1<br>565184-33-0 | (R)-1-[(R)-1-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>46</sub> H <sub>32</sub> F <sub>12</sub> FeP <sub>2</sub><br>930.54 g/mol     |  | Walphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-W001-2<br>849925-17-3  | (S)-1-[(S)-1-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>46</sub> H <sub>32</sub> F <sub>12</sub> FeP <sub>2</sub><br>930.54 g/mol     |  |
| SL-W002-1<br>565184-32-9 | (R)-1-[(R)-1-(Diphenylphosphino)ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>42</sub> H <sub>36</sub> FeP <sub>2</sub><br>658.54 g/mol                                                |  | Walphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-W002-2<br>1854067-25-6 | (S)-1-[(S)-1-(Diphenylphosphino)ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>42</sub> H <sub>36</sub> FeP <sub>2</sub><br>658.54 g/mol                                                |  |
| SL-W003-1<br>565184-29-4 | (R)-1-[(R)-1-(Dicyclohexylphosphino)ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>42</sub> H <sub>48</sub> FeP <sub>2</sub><br>670.64 g/mol                                            |  | Walphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-W003-2<br>849925-19-5  | (S)-1-[(S)-1-(Dicyclohexylphosphino)ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>42</sub> H <sub>48</sub> FeP <sub>2</sub><br>670.64 g/mol                                            |  |
| SL-W006-1<br>894771-25-6 | (R)-1-[(R)-1-[Bis(3,5-xylyl)phosphino]ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>46</sub> H <sub>44</sub> FeP <sub>2</sub><br>714.65 g/mol                                          |  | Walphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-W006-2<br>849925-21-9  | (S)-1-[(S)-1-[Bis(3,5-xylyl)phosphino]ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>C <sub>46</sub> H <sub>44</sub> FeP <sub>2</sub><br>714.65 g/mol                                          |  |
| SL-W008-1<br>821009-34-1 | (R)-1-[(R)-1-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ethyl]-2-[2-(dicyclohexylphosphino)phenyl]ferrocene<br>C <sub>46</sub> H <sub>44</sub> F <sub>12</sub> FeP <sub>2</sub><br>942.62 g/mol |  | Walphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-W008-2<br>849925-22-0  | (S)-1-[(S)-1-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ethyl]-2-[2-(dicyclohexylphosphino)phenyl]ferrocene<br>C <sub>46</sub> H <sub>44</sub> F <sub>12</sub> FeP <sub>2</sub><br>942.62 g/mol |  |
| SL-W009-1<br>894771-28-9 | (R)-1-[(R)-1-[Di(3,5-xylyl)phosphino]ethyl]-2-[2-[di(3,5-xylyl)phosphino]phenyl]ferrocene<br>C <sub>50</sub> H <sub>52</sub> FeP <sub>2</sub><br>770.75 g/mol                                      |  | Walphos | <b>5g</b><br><b>50g</b><br><b>250g</b> | SL-W009-2<br>849925-24-2  | (S)-1-[(S)-1-[Di(3,5-xylyl)phosphino]ethyl]-2-[2-[di(3,5-xylyl)phosphino]phenyl]ferrocene<br>C <sub>50</sub> H <sub>52</sub> FeP <sub>2</sub><br>770.75 g/mol                                      |  |

QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS

| Solvias No. | Chemical Name     |                  | Supplier's | Solvias No. | Chemical Name     |                  | Structural Formula |
|-------------|-------------------|------------------|------------|-------------|-------------------|------------------|--------------------|
| CAS No.     | Molecular formula | Molecular weight | trade name | CAS No.     | Molecular formula | Molecular weight | Structural Formula |

## WALPHOS LIGANDS continued...

|                           |                                                                                                                                    |              |                                                                                   |         |                                        |                           |                                                                                                                                    |              |                                                                                     |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------|---------|----------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|
| SL-W012-1<br>565184-30-7  | (R)-1-[(R)-1-(Di- <i>tert</i> -butylphosphino)ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>$C_{38}H_{44}FeP_2$               | 618.56 g/mol |  | Walphos | <b>5g</b><br><b>50g</b><br><i>250g</i> | SL-W012-2<br>1854067-37-0 | (S)-1-[(S)-1-(Di- <i>tert</i> -butylphosphino)ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene<br>$C_{38}H_{44}FeP_2$               | 618.56 g/mol |  |
| SL-W029-1<br>1854067-50-7 | (R)-1-[(R)-1-(Di- <i>tert</i> -butylphosphino)ethyl]-2-[2-(dicyclohexylphosphino)phenyl]ferrocene<br>$C_{38}H_{56}FeP_2$           | 630.66 g/mol |  | Walphos | <b>5g</b><br><b>50g</b><br><i>250g</i> | SL-W029-2<br>1854067-58-5 | (S)-1-[(S)-1-(Di- <i>tert</i> -butylphosphino)ethyl]-2-[2-(dicyclohexylphosphino)phenyl]ferrocene<br>$C_{38}H_{56}FeP_2$           | 630.66 g/mol |  |
| SL-W030-1<br>1854067-62-1 | (R)-1-[(R)-1-(Di- <i>tert</i> -butylphosphino)ethyl]-2-[2-(di- <i>tert</i> -butylphosphino)phenyl]ferrocene<br>$C_{34}H_{52}FeP_2$ | 578.58 g/mol |  | Walphos | <b>5g</b><br><b>50g</b><br><i>250g</i> | SL-W030-2<br>1854067-71-2 | (S)-1-[(S)-1-(Di- <i>tert</i> -butylphosphino)ethyl]-2-[2-(di- <i>tert</i> -butylphosphino)phenyl]ferrocene<br>$C_{34}H_{52}FeP_2$ | 578.58 g/mol |  |

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## C-X coupling catalysts

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| Solvias No.<br>CAS No.     | Chemical Name<br>Molecular formula <i>Molecular weight</i>                                                                                                                                                     | Structure                    | Supplier's<br>trade name | Quantity                               |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------|----------------------------------------|
| SK-CC01-A<br>359803-53-5   | Chloro(di-2-norbornylphosphino)<br>[2-(dimethyl-amino-κN)(1,1'-biphenyl)-2-yl-κC]palladium(II)<br><br><i>C<sub>28</sub>H<sub>37</sub>ClNPPd</i> <i>560.45 g/mol</i>                                            |                              | C-X coupling catalyst    | <b>5g</b><br><b>50g</b><br><i>250g</i> |
| SK-CC02-A<br>614753-51-4   | Chloro(di-2-norbornylphosphino)<br>[2-(dimethyl-amino-κN)methylferrocen-1-yl-κC]palladium(II)<br><br><i>C<sub>27</sub>H<sub>39</sub>ClFeNPPd</i> <i>606.26 g/mol</i>                                           |                              | C-X coupling catalyst    | <b>5g</b><br><b>50g</b><br><i>250g</i> |
| SK-K319-1a<br>854019-82-2  | (R)-1-[(S)-2-(Dicyclohexylphosphino-κP)ferrocenyl]ethyl(di- <i>tert</i> -butylphosphine-κP)dichloropalladium(II)<br><br><i>C<sub>32</sub>H<sub>52</sub>Cl<sub>2</sub>FeP<sub>2</sub>Pd</i> <i>731.87 g/mol</i> | <br>[PdCl <sub>2</sub> (PP)] | C-X coupling catalyst    | <b>5g</b><br><i>50g</i><br><i>250g</i> |
| SK-K413-9d<br>172418-32-5  | Bis[μ-(acetato-κO:κO')]bis[[2-[bis(2-methylphenyl)phosphino-κP]phenyl]methyl-κC]dipalladium(II)<br><br><i>C<sub>46</sub>H<sub>46</sub>O<sub>4</sub>P<sub>2</sub>Pd<sub>2</sub></i> <i>937.65 g/mol</i>         |                              | C-X coupling catalyst    | <b>5g</b><br><i>50g</i><br><i>250g</i> |
| SK-A108-1a<br>1338245-54-7 | Dichloro[(R)-2,2'-bis(di-2-furylphosphino)-6,6'-dimethoxy-1,1'-biphenyl]palladium(II)<br><br><i>C<sub>30</sub>H<sub>24</sub>Cl<sub>2</sub>O<sub>6</sub>P<sub>2</sub>Pd</i> <i>719.78 g/mol</i>                 |                              | C-X coupling catalyst    | <b>5g</b><br><b>50g</b><br><i>250g</i> |

| Solvias No.<br>CAS No.      | Chemical Name<br>Molecular formula <i>Molecular weight</i>                                                                                                                                                                   | Structure | Supplier's<br>trade name | Quantity                               |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------|----------------------------------------|
| SK-J002-1n<br>2049086-34-0  | Chloro(4-cyanophenyl)[(R)-1-[(S)-2-(diphenylphosphino)ferrocenyl]ethyl-di- <i>tert</i> -butylphosphine]nickel(II)<br><br><i>C<sub>39</sub>H<sub>44</sub>ClFeNNiP<sub>2</sub></i> <i>738.72 g/mol</i>                         |           | C-X coupling catalyst    | <b>5g</b><br><i>50g</i><br><i>250g</i> |
| SK-J003-1n<br>2049086-35-1  | Chloro(4-cyanophenyl)[(R)-1-[(S)-2-(dicyclohexylphosphino)ferrocenyl]ethyl-dicyclohexylphosphine]nickel(II)<br><br><i>C<sub>43</sub>H<sub>60</sub>ClFeNNiP<sub>2</sub></i> <i>802.90 g/mol</i>                               |           | C-X coupling catalyst    | <b>5g</b><br><i>50g</i><br><i>250g</i> |
| SK-J004-1n<br>2049086-36-2  | Chloro(4-cyanophenyl)[(R)-1-[(S)-2-(dicyclohexylphosphino)ferrocenyl]ethyl-diphenylphosphine]nickel(II)<br><br><i>C<sub>43</sub>H<sub>48</sub>ClFeNNiP<sub>2</sub></i> <i>790.80 g/mol</i>                                   |           | C-X coupling catalyst    | <b>5g</b><br><i>50g</i><br><i>250g</i> |
| SK-J014-1n<br>20490-86-37-3 | Chloro(4-cyanophenyl)[(R)-1-[(S)-2-[bis(4-fluorophenyl)phosphino]ferrocenyl]ethyl-di- <i>tert</i> -butylphosphine]nickel(II)<br><br><i>C<sub>39</sub>H<sub>42</sub>ClF<sub>2</sub>FeNNiP<sub>2</sub></i> <i>774.70 g/mol</i> |           | C-X coupling catalyst    | <b>5g</b><br><i>50g</i><br><i>250g</i> |

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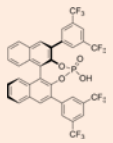
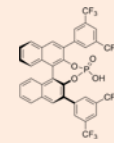
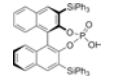
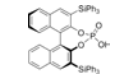
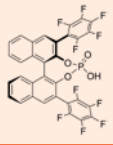
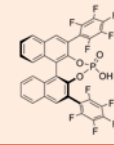
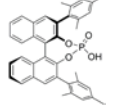
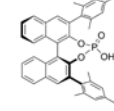
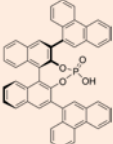
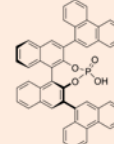
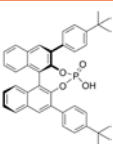
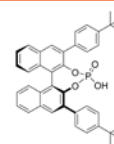
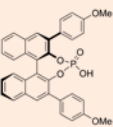
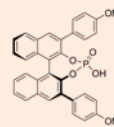
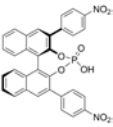
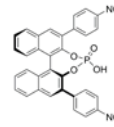
| Solvias No.<br>CAS No.    | Chemical Name<br>Molecular formula    Molecular weight                                                                                                   | Structure | Supplier's<br>trade name | Quantity                 |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------|--------------------------|
| SL-K101-0<br>321921-71-5  | Di(1-adamantyl)- <i>n</i> -butylphosphine<br>C <sub>24</sub> H <sub>39</sub> P                      358.55 g/mol                                         |           | cataCXium® A             | <b>5g</b><br>50g<br>250g |
| SL-K102-0<br>395116-70-8  | Di(1-adamantyl)-benzylphosphine<br>C <sub>27</sub> H <sub>37</sub> P                      392.57 g/mol                                                   |           | cataCXium®<br>Abn        | <b>5g</b><br>50g<br>250g |
| SL-K103-0<br>714951-87-8  | Di(1-adamantyl)- <i>n</i> -butylphosphine<br>hydroiodide<br>C <sub>24</sub> H <sub>40</sub> IP                      486.46 g/mol                         |           | cataCXium®<br>AHI        | <b>5g</b><br>50g<br>250g |
| SL-K104-0<br>672937-60-9  | 2-(Dicyclohexylphosphino)-1-phenyl-1 <i>H</i> -<br>pyrrole<br>C <sub>22</sub> H <sub>30</sub> NP                      339.46 g/mol                       |           | cataCXium®<br>PCy        | <b>5g</b><br>50g<br>250g |
| SL-K105-0<br>740815-36-5  | 2-(Dicyclohexylphosphino)-1-<br>phenylindole<br>C <sub>26</sub> H <sub>32</sub> NP                      389.53 g/mol                                     |           | cataCXium®<br>PInCy      | <b>5g</b><br>50g<br>250g |
| SL-K106-0<br>672937-63-2  | 2-(Dicyclohexylphosphino)-1-(2-<br>methoxyphenyl)-1 <i>H</i> -pyrrole<br>C <sub>23</sub> H <sub>32</sub> NOP                      369.49 g/mol           |           | cataCXium®<br>POMeCy     | <b>5g</b><br>50g<br>250g |
| SL-K107-0<br>794527-14-3  | 1-(2,4,6-Trimethylphenyl)-2-<br>(dicyclohexylphosphino)imidazole<br>C <sub>24</sub> H <sub>35</sub> N <sub>2</sub> P                      382.53 g/mol   |           | cataCXium®<br>PICy       | <b>5g</b><br>50g<br>250g |
| SL-K108-0<br>672937-61-0  | 1-Phenyl-2-(di- <i>tert</i> -butyl-phosphino)-1 <i>H</i> -<br>pyrrole<br>C <sub>18</sub> H <sub>26</sub> NP                      287.39 g/mol            |           | cataCXium®<br>PtB        | <b>5g</b><br>50g<br>250g |
| SL-K109-0<br>740815-37-6  | 2-(Di- <i>tert</i> -butylphosphino)-1-phenylindole<br>C <sub>22</sub> H <sub>28</sub> NP                      337.44 g/mol                               |           | cataCXium®<br>PIntB      | <b>5g</b><br>50g<br>250g |
| SL-K110-0<br>1053658-91-5 | 2-(Di- <i>tert</i> -butylphosphino)-1-(2-<br>methoxyphenyl)-1 <i>H</i> -pyrrole<br>C <sub>19</sub> H <sub>28</sub> NOP                      317.41 g/mol |           | cataCXium®<br>POMetB     | <b>5g</b><br>50g<br>250g |
| SL-K111-0<br>1007311-98-9 | (9-Butyl-9-fluorenyl)<br>dicyclohexylphosphonium<br>tetrafluoroborate<br>C <sub>29</sub> H <sub>40</sub> PBF <sub>4</sub> 506.41 g/mol                   |           | cataCXium®<br>FBu        | <b>5g</b><br>50g<br>250g |

| Solvias No.<br>CAS No.    | Chemical Name<br>Molecular formula    Molecular weight                                                                                                                            | Structure | Supplier's<br>trade name | Quantity                 |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------|--------------------------|
| SL-K112-0<br>1007311-95-6 | Dicyclohexyl-[9-(3-phenylpropyl)-9-<br>fluorenyl]phosphoniumtetrafluoroborate<br>C <sub>34</sub> H <sub>42</sub> PBF <sub>4</sub> 568.48 g/mol                                    |           | cataCXium®<br>FPrPh      | <b>5g</b><br>50g<br>250g |
| SL-K113-0<br>1039775-34-2 | Dicyclohexyl-[2-sulfo-9-[3-(4-<br>sulfophenylpropyl)-9-fluorenyl]]<br>phosphonium hydrogensulfate<br>C <sub>34</sub> H <sub>43</sub> O <sub>10</sub> PS <sub>3</sub> 738.88 g/mol |           | cataCXium®<br>FSulf      | <b>5g</b><br>50g<br>250g |
| SL-K114-0<br>937378-18-2  | (9-Benzyl-9-fluorenyl)<br>dicyclohexylphosphonium<br>tetrafluoroborate<br>C <sub>32</sub> H <sub>38</sub> PBF <sub>4</sub> 540.42 g/mol                                           |           | cataCXium®<br>FBn        | <b>5g</b><br>50g<br>250g |

QUANTITIES MARKED IN **BOLD** WILL TYPICALLY BE DELIVERED FROM STOCK OR WITHIN 3 TO 4 WEEKS | QUANTITIES MARKED IN *ITALICS* WILL TYPICALLY BE DELIVERED WITHIN 4 TO 6 WEEKS

# Organocatalysts

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| Solvias No.<br>CAS No.    | Chemical Name<br>Molecular formula                                                                                                                           | Molecular weight | Structural Formula                                                                  | Supplier's<br>trade name | Quantity                 | Solvias No.<br>CAS No.    | Chemical Name<br>Molecular formula                                                                                                                           | Molecular weight | Structural Formula                                                                    |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|--------------------------|--------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------|
| SL-O101-1<br>791616-62-1  | (R)-3,3'-Bis[3,5-bis(trifluoromethyl)phenyl]-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>36</sub> H <sub>17</sub> F <sub>12</sub> O <sub>4</sub> P | 772.48 g/mol     |    | CPA                      | <b>5g</b><br>50g<br>250g | SL-O101-2<br>878111-17-2  | (S)-3,3'-Bis[3,5-bis(trifluoromethyl)phenyl]-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>36</sub> H <sub>17</sub> F <sub>12</sub> O <sub>4</sub> P | 772.48 g/mol     |    |
| SL-O103-1<br>791616-55-2  | (R)-3,3'-Bis(triphenylsilyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>56</sub> H <sub>41</sub> O <sub>4</sub> PSi <sub>2</sub>                  | 865.08 g/mol     |    | CPA                      | <b>5g</b><br>50g<br>250g | SL-O103-2<br>929097-92-7  | (S)-3,3'-Bis(triphenylsilyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>56</sub> H <sub>41</sub> O <sub>4</sub> PSi <sub>2</sub>                  | 865.08 g/mol     |    |
| SL-O105-1<br>1284293-45-3 | (R)-3,3'-Bis(2,3,4,5,6-pentafluorophenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>32</sub> H <sub>11</sub> F <sub>10</sub> O <sub>4</sub> P    | 680.39 g/mol     |    | CPA                      | <b>5g</b><br>50g<br>250g | SL-O105-2<br>1882075-20-8 | (S)-3,3'-Bis(2,3,4,5,6-pentafluorophenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>32</sub> H <sub>11</sub> F <sub>10</sub> O <sub>4</sub> P    | 680.39 g/mol     |    |
| SL-O106-1<br>695162-87-9  | (R)-3,3'-Bis(2,4,6-trimethylphenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>38</sub> H <sub>33</sub> O <sub>4</sub> P                          | 584.65 g/mol     |    | CPA                      | <b>5g</b><br>50g<br>250g | SL-O106-2<br>878111-18-3  | (S)-3,3'-Bis(2,4,6-trimethylphenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>38</sub> H <sub>33</sub> O <sub>4</sub> P                          | 584.65 g/mol     |    |
| SL-O107-1<br>864943-22-6  | (R)-3,3'-Bis(9-phenanthryl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>48</sub> H <sub>29</sub> O <sub>4</sub> P                                  | 700.73 g/mol     |    | CPA                      | <b>5g</b><br>50g<br>250g | SL-O107-2<br>1043567-32-3 | (S)-3,3'-Bis(9-phenanthryl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>48</sub> H <sub>29</sub> O <sub>4</sub> P                                  | 700.73 g/mol     |    |
| SL-O108-1<br>861909-30-0  | (R)-3,3'-Bis(4-tert-butylphenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>40</sub> H <sub>37</sub> O <sub>4</sub> P                             | 612.71 g/mol     |  | CPA                      | <b>5g</b><br>50g<br>250g | SL-O108-2<br>1217901-32-0 | (S)-3,3'-Bis(4-tert-butylphenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>40</sub> H <sub>37</sub> O <sub>4</sub> P                             | 612.71 g/mol     |  |
| SL-O109-1<br>695162-88-0  | (R)-3,3'-Bis(4-methoxyphenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>34</sub> H <sub>25</sub> O <sub>6</sub> P                                | 560.54 g/mol     |  | CPA                      | <b>5g</b><br>50g<br>250g | SL-O109-2<br>1374030-19-9 | (S)-3,3'-Bis(4-methoxyphenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>34</sub> H <sub>25</sub> O <sub>6</sub> P                                | 560.54 g/mol     |  |
| SL-O110-1<br>695162-89-1  | (R)-3,3'-Bis(4-nitrophenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>32</sub> H <sub>19</sub> N <sub>2</sub> O <sub>8</sub> P                   | 590.84 g/mol     |  | CPA                      | <b>5g</b><br>50g<br>250g | SL-O110-2<br>878111-16-1  | (S)-3,3'-Bis(4-nitrophenyl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate<br>C <sub>32</sub> H <sub>19</sub> N <sub>2</sub> O <sub>8</sub> P                   | 590.84 g/mol     |  |

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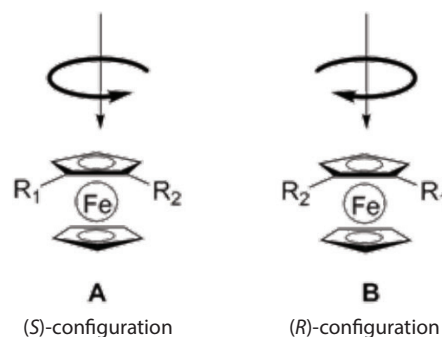


## Differences in nomenclature between Schögl and CAS for chiral ferrocenes

In the vast majority of published papers the configuration of the planar chiral ferrocene compounds is assigned according to the Schögl convention. Considering this fact, Solvias has decided to continue the determination of the stereochemical descriptors of chiral ferrocene compounds for its ligand portfolio exclusively according to the convention that was originally introduced by Schögl. To avoid any confusions, the two different concepts for the assignment of the planar chirality of ferrocenes (bis(cyclopentadienyl)iron) that are currently being applied are briefly outlined.

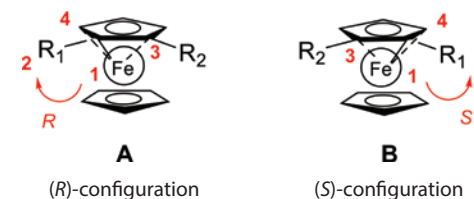
### Schögl's nomenclature for chiral disubstituted ferrocenes

By applying Schögl's nomenclature to ferrocenes with two different substituents at the same cyclopentadienyl ring, the two substituents  $R_1$  and  $R_2$  are ranked according to the CIP rules. Viewing from the top of the (higher) substituted Cp-ring in direction of the Fe atom, the descriptor is assigned by going the shortest way from the higher ranked substituent to the lower ranked one either clockwise ( $R$ ) or anticlockwise ( $S$ ). If the ranking is  $R_1 > R_2$ , the stereochemical descriptor of compound **A** is ( $S$ ) and of **B** ( $R$ ).



### CAS nomenclature for chiral ferrocenes

CAS uses a different nomenclature for the assignment of the planar chirality. According to this concept, each C-atom of the cyclopentadienyl ring is treated as a four-coordinated center, including the Fe-atom counting as one substituent. The chirality symbol is allocated to the cyclopentadienyl ring atom with the highest CIP priority. For example, if the CIP ranking of the cyclopentadienyl ring substituents is  $R_1 > R_2$ , the chirality descriptor is allocated to the  $C(R_1)$ -atom. If the CIP priority at this  $C(R_1)$ -atom is  $Fe > R_1 > C(R_2) > C(H)$ , the configuration for compound **A** is assigned as ( $R$ ), for compound **B** as ( $S$ ).



In conclusion, the stereochemical descriptors for the planar chirality of the same enantiomer of any substituted ferrocene derivative can be ( $R$ ) or ( $S$ ), whereby the correct descriptor is dependent on the chosen nomenclature.

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